EVOLUTION OF THE MICROPALEONTOLOGICAL STUDIES IN ROMANIA

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From a historical point of view, the micro-paleontological studies in Romania can be divided into three different stages.

The first one is the period when these studies were carried out by foreign scientists, because the Romanian school of paleontology was still unformed. To that period of time belongs Reuss's paper: "Die Foraminiferen und Ostracoden der Kreide am Kanara - See bei Küstendsche" - 1865 Sitzungsb, K. Akad, Wiss, Wien, Math. Natur. Cl. vol. 52 (1865). This contains the first description of an Upper Cretaceous foraminiferal fauna from the White Chalk of the Constan[a area in Southern Dobrogea. From Basarabia area the first paper is represented by: Karrer, F. and Sintzow, J., 1877 "Uber des Auftreten des Foraminiferen Genus Nubecularia im Sarmatischen Sande von Kischenew". Sitzungsb, K. Akad, Wiss, Wien, Math. Natur. Cl. vol. 74 (p. 272 - 284) / *Sinzowella deformis* /.

Until 1918 Transylvania belonged, from an administrative point of view, to the Austro - Hungarian Empire. The first micropaleontological studies of this area are those of J. L. Neugeboren and F. Karrer, but the beginning is in Monfort's monograph - 1808 "Conghiologie, Systematique et Classification Methodique des Coquille" vol. 1, where *Nummulites perforatus* from the Legia - Jibou area is described for the first time.

On the Sibiu area (Lăpugiu de sus), Neugeboren published 15 papers starting in 1846,:

"Uber die Foraminiferen des tegels Ober - Lapugy" Haidinger's Berichte, vol. 2 (1846), followed by 1852 "Foraminiferen von Felso – Lapugy Verhandlung und Mittheilung des Siebensbürgisher Verein für Naturwissensch zu Hermanstadts", vol. 1 (p. 118 - 127), 1852 "Foraminiferen von Ober Lapugy" idem vol. 3 (p. 50 - 59), 1856 "Die Foraminiferens Ordung der Strichostegie von Ober Lapugy in Siebenburgen" Dennschrrift. K. Akad der Wiss. Math. Natur. Wissenschaflische Klass. vol. 12 (p. 65 - 108) and ending with "Die Cristellarien und Robulien von Ober Lapugy". Arch. Ver. Sieb. Landesk. n. ser. vol. 10, no. 2, 1872. Neugeboren's original specimens are preserved in the Naturhistoricaches Museum in Vienna and part in the Natural Sciences Section of the Brukenthal Museum in Sibiu.

In 1867 – 1868 F. Karrer published two papers on the Miocene foraminifera from the Costei area. The famous one is "Die miocene Foraminiferen fauna von Kostei im Banat", 1868. Sitzungsb. K. Akad. Wiss. Wienn. Math. Nathurist. Cl. vol. 58, pt. 1 (p. 121 - 193).

In 1884 J. Daday published the first paper on recent foraminifera: "Uber eine Polythalamie der Kochsalzümpel bei Deva in Siebenburgen (*Entzia tetrastomella*)", Zeitschrift für Wissenschafrliche Zoologie vol. 40 (465 - 480). At Cluj, Anthal Koch published in 1890 a large paper on the geology of the Transylvanian Bassin, using many micropaleontological data on Nummulites and other foraminifera for determining Paleogene and Miocen stages.

The second stage includes the end of the 19th century and the first 20 years of the 20th century, characterized by the first Romanian paleontological studies which contain any records on microfossils. An essential role in the forming and development of the Romanian school of paleontology has been played by the two Universities, that of Iassy (founded in 1860) and that of Bucharest (founded in 1864). Here started the first Romanian studies in geology and, of course, in paleontology, carried out by Romanian personalities such as Gregoriu Cobălcescu (Jassy) and Gregoriu Ştefănescu (Bucharest), who were the first professors of Geology, Mineralogy and Paleontology at the above - mentioned universities.

In 1905, by the decree of H. M. Carol I of Romania, the first Romanian Laboratory of Paleontology was seted up, at the University of Bucharest. The first Romanian professor of Paleontology was Sabba Ştefănescu, followed in 1930 by Ioan Simionescu (from the University of Iassy), the most eminent Romanian paleontologist. At the Cluj University, after 1918, Ion Popescu Voiteşti was the first Romanian professor of Paleontology. The characteristic feature of this stage is that the studies carried out were not limited to the field of micropaleontology qand often contained records of the presence of foraminifera.

From this stage, a remarcable paper is that of I. P. Voiteşti 1909 "Contribution á l'etude stratigraphique de la Depression Getique". Ann. Inst. Geol. Rom. vol. III, where species of the genus Nummulites from the Albeşti - Muscel area is figured and described for the first time.

With the third stage start the first true Romanian micropaleontological studies. In 1922, Otto Protescu was the first Romanian paleontologist to obtain his Doctor's degree with a mircroplaelontological study: "Contribution to the study of the Tertiary formaniniferal fauna from Romania" at the University of Bucharest (Ann. Geol. Inst. Romania, vol. 9; 154 pages and 4 plates). In 1934, G. Murgeanu and M.G. Filipescu published the description of a new species of tintinnids in "Sur la presence des Calpionelles dans les depots jurassiques et cretaceés de Roumanie" C. R. Senances Inst. Geol. Rom. vol. 21. In 1939, Virginia Barbu and Elena Dobrescu published the article "Foraminifera, Ostracoda and Bryozoa from the Mediteranean strata of Slobozia - Sirăuţ on Prut (Moldavia)". Bull. Soc. Sci. Natur. vol. 10; and in 1943, M. G. Filipescu carried out for the first time research on Radiolaria and Sillicoflagellata from the Miocene Carpathian molasse.

It is also necessary to mention that between World Wars I and II the activity for oil and gaz prospection and exploatation, called for microplaeontological data. For this purpose, at Câmpina, the center of those activities, the first Laboratories on practical Micropaleontology were developed as branches of the Cushman Laboratory from Massachusetts.

In these laboratories H. Bolli and R. Noth were working together with Romanian beginners such as Th. Iorgulescu, Gh. Voicu, C. Stoica, Maria Tocorjescu.

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After the World War II, micropaleontological studies become more and more frequent under the influence of the progress attained in Micropaleontology. Two other papers for Doctor's degree have a micropaleontological subject: Th. Iorgulescu - 1953, "Contribution to the micropaleontological study of the Upper Miocene strata from the Eastern Muntenia area (districts of Prahova and Buz/u - Romania)". Ann. Geol. Comite Romania, vol. 26, 217 pages and 9 plates, and Gh. Voicu "Micropaleontological study of the Cornu beds of the Eastern part of the Sl/nic syncline between the Prahova and V/rbil/u Valley". Ann. Geol. Comite Romania, vol. 26, 220 pages. With these studies started the modern micropaleontological studies in Romania.

These studies can be classified into three major directions:

1. pure taxonomical studies;
2. morfological and taxonomical studies;
3. microbiostratigraphical studies.

As it was natural, these studies started with those in taxonomy, because ever since 1945 Simpson had said: "Taxonomy is the most elementary and the most inclusive part of Zoology (Micropaleontology our note); most elementary because use animal (living and fossils) can not be discussed or treated in a scientific way until some taxonomy has been achieved, and most inclusive because taxonomy in its various guises and branches eventually together utilizes, summarizes and implements every thing is now about animals whether morphological, physiological, psychological or ecological" to which might be added "or geological". Also Mayr (1942) recognized three fields of interest for systematic:

1. the primary analytical stage concerned with the identification of species;
2. the synthetic stage and development of a classification;
3. the theoretical stage concerned with species origin, variation and extinction.

Now, after 50 years of activity it is possible to say that modern micropaleontological studies in Romania followed exactly those three fields already carried out by Mayr.

The most important event for the future development of Romanian micropaleontology was the introduction, in 1950, into the University of Bucharest's Laboratory of Paleontology, of the first course on Micropaleontology ever taught in the country. This moment can be considered as the beginning of the Romanian school of modern Micropaleontology, because the lectures and practical works gave the first opportunity to students to make direct contact with this very interesting and useful branch of Paleontology and to specialize in this field. The first teacher of this course was Dr. I. Z. Barbu, a student of Sabba Ştefănescu and coworker of Ion Simionescu.

After 25 years, those who had attended his courses and started to work in Micropaleontology (all with PhD in Micropaleontology) at the different laboratories were able to organize and to prepare the XIVth European Micropaleontological Colloquium, held in September 9 - 18, 1975. The guidebook published on this occasion was very much appreciated by all of the more than 80 participants from Europe, SUA, Canada, Australia: "Micropaleontological guide to the Mesozoic and Tertiary of the Romanian Carpathians".

Th. Iorgulescu published for the first time in 1952 the Romanian translation of the Cushman's handbook on foraminifera: "Foraminifera their classification and economic use" to which he adds also information on Radiolarian, Ostracoda and microscopic metazoa (porifera, bivalves, gastropods, bryozoa, echinoderms). This is the first Romanian handbook on Micropaleontology.

After 1960 many PhD theses had a micropaleontological content and represented real monographs. Most of them got the Romanian Academy price "Gr. Cobălcescu" for their micropaleontological and stratigraphical contributions.

After 1970 the activity of education in the Micropaleontology field was continued at the Iassy University by Dr. Bica Ionesi, at the Cluj-Napoca University by Dr. Nicolae Surariu and at the University of Bucharest, Laboratory of Paleontology by Dr. Theodor Neagu. Economic and scientific micropaleontological activity was developed in the laboratories of the Geological Institut of Romania and Romanian Survey Institute for Hydrocarbons.

After 1965 Romanian micropaleontologists started to publish (of course with many impediments and big efforts) in the classical magazines for Micropaleontology as Micropaleontology New York, La Revue de Micropaleontologie - Paris, Revista Española de Micropaleontologia - Madrid, etc., making this activity known outside Romania. In this direction the activity of Dr. Paulian Dumitrică in the field of Radiolarian is a demonstrative exemple. More and more new taxa were described from the Mesozoic and Tertiary sediments belonging to the foraminifera, ostracods and conodonts. A large part of those new taxa (especially forams genera) were recognized as valid ones by the last biggest treatise on foraminifera "Foraminiferal genera and their classification" published by A. Loeblich and Helen Tappan, 1988. It represents an encyclopedia on foraminifera from all ages starting with Lowermost Paleozoic till recent sediments.

After 1970 were published a lot of monograph studies regarding the foraminifera (especially) in the publication of the Geological Institut of Romania - Memories, also in the Romanian Academy publishing house. Between 1979 and 1989 the first Romanian Treatise on Micropaleontology (part one in 1979 for protozoa and part two in 1989 for microscopic metazoa - ostracods and conodonts) was published in the Technic publishing house by Th. Neagu.

For the future, we consider that for the young generation of Romanian micropaleontologist, the most important task is to continue this activity because there are a lot of data to be collected. We are too far from the end of taxonomical and systematical studies from the micropaleontological point of view on the Mesozoic and Tertiary deposits outcropping on the Romanian teritory.